Volunteer Lake Assessment Program Individual Lake Reports

KOLELEMOOK LAKE, SPRINGFIELD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	610	**Max. Depth (m):**	6.7	**Flushing Rate (yr^{-1}):**	0.9
Surface Area (Ac.):	99	**Mean Depth (m):**	4.1	**P Retention Coef:**	0.71
Shore Length (m):	2,900	**Volume (m^3):**	1,623,000	**Elevation (ft):**	1387

TROPHIC CLASSIFICATION

Year	Trophic class
1980	OLIGOTROPHIC
1996	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

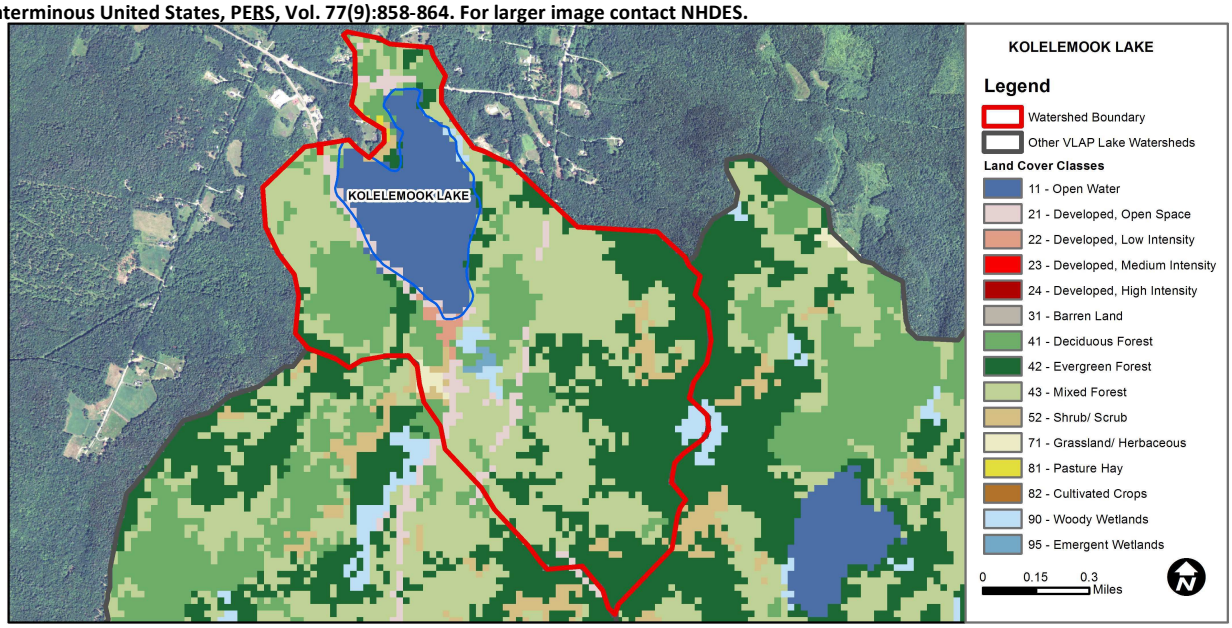
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

KOLEMOOK LAKE - TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	13.7	Barren Land	0	Grassland/Herbaceous	0.47
Developed-Open Space	3.88	Deciduous Forest	14.7	Pasture Hay	0.2
Developed-Low Intensity	0.64	Evergreen Forest	26.33	Cultivated Crops	0
Developed-Medium Intensity	0.07	Mixed Forest	35.94	Woody Wetlands	1.58
Developed-High Intensity	0	Shrub-Scrub	2.16	Emergent Wetlands	0.34

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
KOLELEMOOK LAKE, SPRINGFIELD, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels remained fairly low throughout the summer. Historical trend analysis indicates chlorophyll levels tend to fluctuate slightly from year to year.
- **CONDUCTIVITY/CHLORIDE:** Average lake conductivity levels were slightly elevated; however lake conductivity has decreased in recent years. Chloride levels were relatively low and much reduced from historical levels.
- **E. COLI:** E. coli levels were much lower than state standards for public beaches and surface waters.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low. Historical trend analysis indicates epilimnetic (upper water layer) phosphorus levels tend to fluctuate from year to year.
- **TRANSPARENCY:** Lake transparency was high although the average lake level was low. Historical trend analysis indicates a significantly improving (increasing) lake transparency since monitoring began.
- **TURBIDITY:** Turbidity levels were low throughout the summer.
- **PH:** pH levels were in a good range, however historically have been at critical levels.
- **RECOMMENDED ACTIONS:** Continue working with town and state road agents on a reduced salt zone near the lake as the decreased conductivity and chloride concentrations reflect this effort. Keep up the great work!

Dissolved Oxygen & Temperature Profile

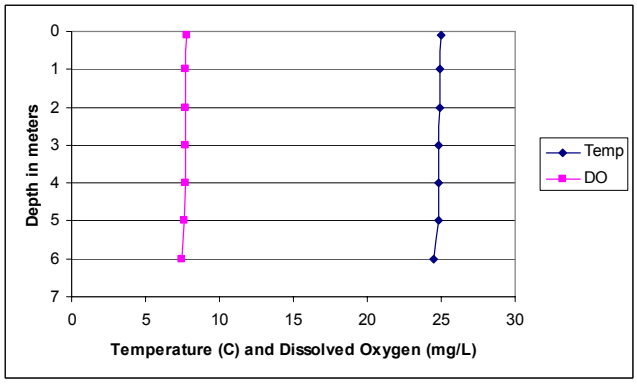


Table 1. 2012 Average Water Quality Data for KOLELEMOOK LAKE

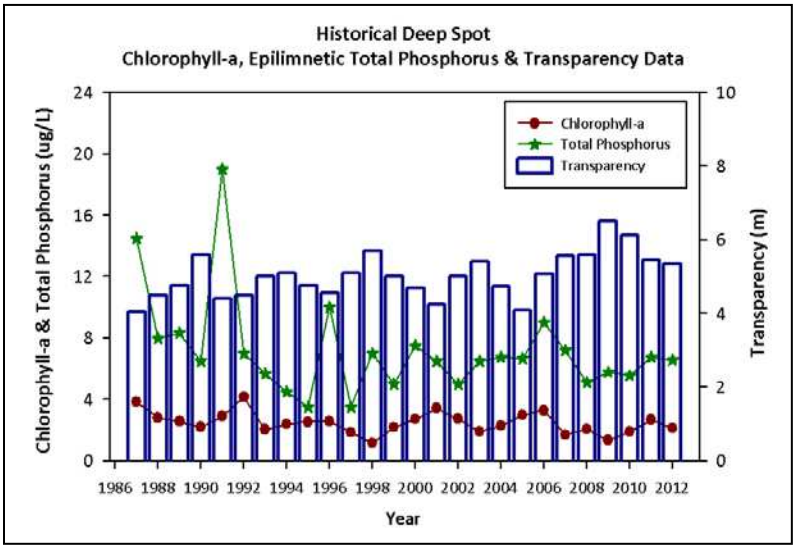
Station Name	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m		ntu	
							NVS	VS		
Arlenes Dock					10					
Arlenes Oak					10					
Donkeys					25					
Deep Epilimnion	8.38	2.10	14	78.6		7	5.34	6.11	0.68	6.73
Deep Hypolimnion				79.1		6			0.74	6.84

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Improving	Data significantly increasing.
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.



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